

عنوان مقاله:

The effect of hydroalcoholic extract of Cichorium intybus leaf on aryl hydrocarbon receptor expression in the testis of Wistar rats exposed to cigarette smoke

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خلاصه مقاله:

Objective: Cigarette smoke (CS) contains compounds such as reactive oxygen species (ROS). Oxidative stress caused by excessive ROS eventually leads to germ cell apoptosis and male infertility. The leaves of Cichorium intybus (chicory) are rich in natural antioxidants, but their protective effects on the adverse effects of CS on testicular tissue have not been studied. Materials and Methods: ۲۴ Wistar rats were classified into four groups: control, extract: treatment with chicory extract (۲۰۰ mg/kg body weight/day) for ۱۳ weeks, smoke: exposed to CS for ۱۳ weeks, and smoke + extract: exposed to CS and treated with the C. intybus extract. Histological and biochemical analyses and apoptosis assay were done, and Ahr, and Cyp1a1 expression was determined. Results: Treatment with C. intybus compensated for the reduction of Sertoli cells, spermatogonia, spermatocytes, and spermatids caused by CS. Chicory extract reduced free radicals and improved antioxidant status. The lowest and highest percentage of apoptotic cells was observed in the extract and smoke groups, respectively, while simultaneous treatment with C. intybus extract led to a significant reduction of apoptotic cells. The mean Ahr levels in the control, extract, smoke and smoke + extract groups were 1.00 ± 0.57 , 1.93 ± 0.25 , 5.98 ± 0.42 , and 0.62 ± 0.22 , respectively ($p < 0.05$). The mean levels of Cyp1a1 expression in the control, extract, smoke and smoke + extract groups were 1.00 ± 0.31 , 2.28 ± 0.65 , 5.55 ± 0.40 , and 0.21 ± 0.23 ($p < 0.05$). Conclusion: The C. intybus extract probably affected Cyp1a1 expression by downregulation of Ahr. These led to a decrease in free radicals and apoptosis, and an improvement in antioxidant status.

کلمات کلیدی:

Cichorium Intybus, Spermatogenesis, Malondialdehyde, Caspase-۳, Cigarette smoke

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